

CLAIMS

What is claimed is:

1. A method of polymerizing an aromatic monomer, comprising combining an aromatic monomer with a hematin catalyst, wherein the hematin catalyst has
5 been derivatized with one or more non-proteinaceous amphipathic groups.
2. The method of Claim 1, further comprising combining a peroxide initiator with the aromatic monomer and the derivatized hematin.
3. The method of Claim 2, further comprising a template, wherein the aromatic monomer aligns along said template and polymerizes to form a complex
10 comprising the polymerized aromatic monomer and the template.
4. The method of Claim 3, wherein the template is a polyelectrolyte.
5. The method of Claim 4, wherein the polyelectrolyte is polyanionic.
6. The method of Claim 5, wherein the polyanionic polyelectrolyte is poly(styrene sulfonic acid) or a salt thereof.
- 15 7. The method of Claim 3, wherein the template is optically active.
8. The method of Claim 7, wherein the optically active template is an oligonucleotide or a polynucleic acid or a salt thereof.
9. The method of Claim 8, wherein the polynucleic acid is 2'-deoxyribonucleic acid or a salt thereof.

10. The method of Claim 5, wherein the template is lignin sulfonic acid or a salt thereof.
11. The method of Claim 5, wherein the template is dodecylbenzene sulfonic acid or a salt thereof.
- 5 12. The method of Claim 3, wherein the aromatic monomer is a substituted or unsubstituted aromatic compound.
13. The method of Claim 12, wherein the aromatic compound is an aniline.
14. The method of Claim 13, wherein the aniline is 2-methoxy-5-methylaniline.
15. The method of Claim 12, wherein the aromatic compound is a phenol.
- 10 16. The method of Claim 13, wherein the complex formed is a water-soluble complex of a polyaniline and the template.
17. The method of Claim 16, wherein the polyaniline is of the electrically-conducting emeraldine salt form.
18. The method of Claim 15, wherein the complex formed is a water-soluble
15 complex of polyphenol and the template.
19. The method of Claim 7, wherein the polymerized aromatic monomer complexed to the template has a macro-asymmetry.